

cated" all over the States at 3500 different works, some of them so remote that the average journey takes as many as twenty days. Within five months of commencing operations 26,000 men were employed on the construction of the yard. The site is well inland, away from possible enemy attack.

OUR ASTRONOMICAL COLUMN.

THE NEW STAR IN AQUILA.—Further particulars of the observation of Nova Aquilæ by Prof. Laskovski at Geneva on June 7 have been given in Circular No. 25 of the Marseilles Observatory. The star was observed at 9.45 p.m. mid-European time, and was described as being white, and of a brightness greater than that of α Ophiuchi (mag. 2.1), but less than that of Altair (0.9). This would appear to be the earliest observation so far reported. Subsequent observations agree with those made elsewhere in showing that the star was brighter than Vega on June 9, and had dwindled to about 2nd magnitude by June 18. It is added that the region was under observation by M. Dumastheray at Nyon on June 3 and 4, and that nothing abnormal was then noted.

There appears to have been a slight recovery in brightness of the nova at the beginning of the present month. Mr. Denning found that after reaching mag. 3.75 on June 29 there was a decided increase in brightness to mag. 3.5 on July 1. With possibly slight variations the star remained at about this brightness up to July 8. The check in the decline of the nova occurred at about the same interval after maximum as in the case of Nova Persei, and it will be interesting to see if Nova Aquilæ will now similarly assume the characteristics of a variable star. The bright lines of hydrogen have continued to dominate the visible spectrum, and no striking changes in detail were noted by Prof. Fowler between June 29 and July 8 except that the reversal of the hydrogen lines was no longer clearly visible. The band in the blue near $\lambda 464$ remained a conspicuous feature during this period, and was possibly increasing in relative brightness. The relative brightness of the line 502, however, did not appear to have notably increased.

Photographs of the spectrum obtained by the Rev. T. E. R. Phillips have shown remarkable changes in the structure of the bright bands of hydrogen. On June 13 and 15 the bands had a bright central stripe, with bright companion lines on both sides; on June 22 they were single, but broad; on June 26, 27, and 29 they were double, as if centrally reversed, and the less refrangible components were the brighter; and on July 2 they were again single, but broad. The band about $\lambda 464$ appeared as early as June 13, and has continued to brighten; it passed through changes of structure similar to those exhibited by the hydrogen bands. A new bright band appeared on July 4 on the more refrangible edge of a broad, dark space on the violet side of H γ .

EPHEMERIS OF WOLF'S PERIODIC COMET.—Attempts to find this comet have hitherto been unsuccessful, but as its distance from the sun and earth is steadily diminishing, the comet is likely to be found before long. The following ephemeris is from Mr. Kamenisky's elements.—

	G.M.T.	R.A.			N. Decl.	Log r	Log Δ
		h.	m.	s.			
July	12.46	20	32	52	24 50	0.3368	0.1376
	24.64	20	26	3	26 28	0.3217	0.1017
Aug.	5.49	20	17	1	26 45	0.3073	0.0724
	17.01	20	8	27	25 50	0.2936	0.0499
	28.17	20	2	27	23 52	0.2803	0.0338

NO. 2541, VOL. 101]

THE NEW SYSTEM OF TIME AT SEA.—Mr. F. Jacob suggests the term "Intermeridian Time" for the new system, with the abbreviation I.M.T., so that 4h. 7m. I.M.(+3)T. would be equivalent to 7h. 7m. G.M.T. The suggestion has met with favourable consideration from the Admiralty Committee on the subject. The term "Intermeridian" is unobjectionable for denoting the regions that keep the same time, but its length will probably hinder its general adoption for this purpose.

CONFERENCE OF CORRESPONDING SOCIETIES OF THE BRITISH ASSOCIATION.

THE annual conference of Delegates of Corresponding Societies of the British Association was held in the Geological Society's rooms, Burlington House, on Thursday, July 4. At the morning session Dr. F. A. Bather gave his presidential address entitled "The Contribution of Local Societies to Adult Education." In this Dr. Bather endeavoured to summarise the membership and estimate the strength of the various scientific societies in Great Britain, show the part they were playing in the adult education of the country, and make suggestions for the further usefulness of these societies. His statistics had been difficult to compile and were admittedly incomplete, but it was demonstrated that while some centres were well provided for in the way of natural history and allied science societies, there were many large areas which appeared not to be served by any societies of the kind. Discussion was invited, which lasted for the remainder of the morning. The general feeling was that, desirable as it is that everything should be done to increase the popularity and work of our scientific societies, the present time was inopportune, seeing that so many of the young and vigorous men were occupied with more important duties. In his reply to the discussion the president attached particular importance to the remarks made by the delegate from Hull, in reference to the excellent work being accomplished in Yorkshire, where there are far more important societies than in any other county. It was pointed out that, notwithstanding the elaborate and systematic instruction in Nature-study in the schools, and the formation of Nature-study societies for teachers, the result was unquestionably that there was less apparent interest taken in natural history by young men and women after leaving school, and even before the war the membership of the societies had shown an apparent decrease. The conference decided to endeavour to prepare a list of all the scientific societies in the country.

At the afternoon session Mr. Martin C. Duchesne read an admirable paper on "Afforestation," Sir Charles Bathurst and many of the delegates taking part in the discussion. The lecturer dealt at length with the urgent question of the increase of our home forests, and made many excellent suggestions towards the accomplishment of this. It was felt that the delegates could get the societies they represented to use their influence to further the growth of timber throughout the country, and one practical proposition was made, namely, to form an Arbor Day throughout the country. Such a suggestion, made on July 4, was also complimentary to our American friends, who have had an Arbor Day for many years. A short note from Mr. P. Westall, who was not present, was read, the gist of which seemed to be that some authority should make grants to local museums, but how and by whom these grants should be made the author did not seem to know, and the delegates did not appear to be able to help him. On behalf of Mr. B. B. Woodward a "typomap" of the British Isles was exhibited, upon

which naturalists may record the distribution of species. This will probably be circulated among the various societies.

More than one member commented on the fact that this year, when the necessity for directing attention to the national value of science seemed so great, the British Association for the advancement of science had decided to have no general meeting.

THE FUTURE OF THE ENGINEERING TRADES.

THE Report of the Departmental Committee appointed by the Board of Trade to consider the position of the engineering trades after the war has recently been issued (Cd. 9973, price 6d. net).

The report relates to one of the largest and most important of the national activities. It is chiefly concerned with fiscal, commercial, and labour questions. The Committee estimates the annual net value of the output of the engineering trades, excluding the cost of materials, at 84,000,000*l.*, and the real value at 144,000,000*l.*

The Committee remarks on the smallness of many individual firms, in consequence of which they manufacture at a cost which could be greatly reduced if they were on a larger scale, well planned and well equipped; also, that adequate departments for research are necessary, but that small firms cannot bear their cost. The Committee regrets the spirit of exclusiveness which has marked the engineering trade, each manufacturer keeping his own secrets and desiring to retain the knowledge of any special processes and methods for himself.

It is urged that standardisation must be extended. For instance, locomotive manufacturers exist almost entirely on foreign trade, the great railways constructing those they require. But, except in the case of India, locomotives are not standardised, and British engineers employed by foreign railways require modifications of their own. German and American manufacturers build to stock with economy of drawings, patterns, templates, etc. The case of imports of watches is curious. The average value of imported watches from Switzerland is 6*s.* each, and the total value more than a million pounds. The British manufacturer does not seem prepared to supply a good, cheap watch.

The Committee decides against the compulsory adoption of the metric system on the grounds that the expense would be great, and that any change should be effected after agreement with the Dominions and the United States. But it recommends that subdivisions of the inch should be decimalised, and the hundredweight and ton replaced by the cental and short ton.

The recommendation that school education between the ages of fifteen and seventeen should be confined to selected boys does not go so far as Mr. Fisher's Education Bill. As to higher education, the views of the Committee are more advanced. But it is pointed out that the monetary results which can be achieved by a graduate of the technical or scientific side of a university are incommensurate with the expense incurred, and that the rewards for higher technical education are still far too small.

As to the much-discussed question of dumping, the Committee expresses a decided view. It thinks that all necessary steps should be taken to prevent dumping wherever practised, and refers with approval to the legislation in the United States and Canada.

An account is given of the German system of cartels, under which a manufacturer is able to maintain a reasonable output in bad times, and in the case of articles for export receives a rebate in price on raw

and semi-manufactured materials. Also, in Germany there are reduced railway rates on goods for export. It is urged that the Government should supervise, encourage, and assist the development of the supply of raw materials within the Empire. On the other hand, it is suggested that Government control of industries should end as soon as possible after the war; also that labour must withdraw all restriction of output and hampering definitions of skilled work. It is clear that the Committee regards the statistics of trade available in this country as imperfect.

GENETICS AND EVOLUTION.

THE problems connected with genetics and "species-making" continue to attract the attention, both in the United Kingdom and in America, of many biologists, whose papers should not be neglected by students of heredity and evolution. In the *American Naturalist* for October last (vol. li., No. 610) Dr. R. R. Gates discusses the mutation theory and the species concept. With the help of many illustrative examples he tries to show that "there are two distinct types of variability having different geographical relations." The discontinuous type, "independent of environmental or functional influence, has given rise to many specific and generic characters, notably in plants, but also in higher animals." The continuous type "apparently represents the stress of the environment on the species in its dispersal," and "is notably exemplified in birds and mammals."

An exceptionally valuable study on variation in a group of mammals is furnished by A. C. and A. L. Hagedoorn, who write on "Rats and Evolution" in the *American Naturalist* for July, 1917 (vol. li., No. 607). These authors, who have worked from the economic and systematic point of view on "the rat population of the Dutch East Indies," contend that assemblages definable as "species" or "varieties" can be appreciated only through breeding experiments and field work, the results of which must constantly be invoked to check the descriptive activities of the museum specialist, who deals with dead skins and skulls. In their breeding experiments the authors found no new dominant characters, but "in every instance there appeared new recessive characters," for every one of which, they believe, "crossing, recombination of genes was the cause, not loss-mutation."

In connection with these questions, Prof. T. H. Morgan's discussion on the theory of the gene (*Amer. Nat.*, vol. li., No. 609) is noteworthy; in the course of his argument he refers to Prof. Jennings's important address summarised in *NATURE* of November 8 and 15, 1917. Prof. Morgan contends for the stability of the gene; if it vary, the variation falls around a mode. This question is further elucidated by Dr. R. Goldschmidt, who describes "Genetic Experiments concerning Evolution" (*Amer. Nat.*, vol. lii., No. 613), carried out on the gipsy moth (*Porthetria dispar*) and other species; from the crossing of races the caterpillars of which show varying amounts of dark pigment Dr. Goldschmidt concludes that the multiple allelomorphs for pigmentation "are different quantities of the substance which we call a gene, which act according to the mass-law of chemical reactions, i.e. produce a reaction or accelerate it to a velocity in proportion to their quantity." Insects from various European and Asiatic localities have been used in these experiments, and the author states that "the first step in the differentiation of species which occurs in Nature seems to be the formation of geographic races."

With this paper may be compared the second instalment of J. W. H. Harrison's "Studies in the Hybrid *Bistoninae*" (*Journal of Genetics*, vol. vi., No. 4), in which details of the results of crossing several species